APPENDIX I

Tests for commercial tomato varieties administered by the Ministry of Agriculture of the State of Israel

Abstract

The attached document describes official guidelines administered by the Ministry of Agriculture of the State of Israel that are directed to breeders of tomato crop varieties. These guidelines provide the breeders with parameters to qualitatively evaluate tomato varieties. The tomato varieties test encompass <u>visual evaluation</u> of parameters such as endogenous color, presence of veins, jelly, hollowness, "shoulders" color, vegetative growth, fruit leaf cover, disease resistance, fruit shape, general color, hardness/ solidness of the fruit, healthiness of the plant and pulp/flesh color. It should be emphesised that these parameters are <u>visually evaluated in the field</u> by tomato breeders and they are <u>qualitatively scored by a relative scale</u> (i.e. poor, high, soft, weak, few, many, solid, good, pronounced and medium) as presented in Table 2 of the attached document. The subsequent conclusion of considering all these visual evaluations is a general evaluation with respect to the determination if the crop yield of the specific variety is suitable for <u>commercial use</u>.

Tests for Commercial Tomato varieties (2002)

Table 1: Tomato varieties' tests by location

Location	Test	No. of	No. of	Seeding	Harvest
		varieties	repeats	date	date
Eden farm	Regular	6	6	20.2.02	18.6.02
	varieties *				
Eden farm	Special	8	6	20.2.02	16.6.02
	varieties				
Eden farm	Introduction/	8	2	20.2.02	16.6.02
	Acclimatization				
Yavne'el	Regular	6	4	16.3.02	8.7.02
	varieties				
Acre	Regular	17	2	12.4.02	31.7.02
	varieties 1				
Acre	Regular	17	4	12.4.02	7.8.02
	varieties 2				
Acre	Regular	17	3	12.4.02	14.8.02
	varieties 3				
Acre	Special	17	1	12.4.02	31.7.02
	varieties 1				
Acre	Special	19	2	12.4.02	12.8.02
	varieties 2				
Acre	Introduction/	10	4	12.4.02	8.8.02
	Acclimatization				
Mevo-	Regular	13	6	12.5.02	2.9.02
Hamah	varieties				
Mevo-	Special	13	6	12.5.02	30.8.02
Hamah	varieties				
Mevo-	Introduction/	24	2	12.5.02	2.9.02
Hamah	Acclimatization				

^{* =} Harvest by a combine harvester

Quantitative and qualitative parameters for variety comparison:

The parameters for testing the varieties were evaluated in the field and in the laboratory for field crops in the Agricultural Faculty of the State of Israel (by Tehila Bloch):

In the field: red yield, green yield, single fruit weight, % of spines

<u>In the laboratory</u>- evaluation of veins quantity, gel, hollowness, "shoulders", color (visual evaluation), pH, Brix, Brix yield (red yield multiplied by Brix %)

<u>Varieties evaluation</u>- Additional parameters for varieties evaluation in the field are visual parameters tested by skilled persons in the field. These parameters include vegetative growth, fruit leaf cover, healthiness of the plant, fruit shape, fruit color, fruit solidness, and general weighted evaluation performed by the following formula:

15% vegetative growth score + 15% fruit leaf cover score + 30% color score + 40% solidness score

The visual evaluation, performed in the field and in the laboratory, is relatively scored between 1 and 5, as demonstrated in Table 2 that follows:

Table 2: Variety's traits evaluation score

Trait	1	2	3	4	5	6
Endogenous	pink		red		dark red	
color						
veins	many		few		absent	
Jelly	green	red				
hollowness	pronounced		poor		absent	
"shoulders"	green/		yellow		red	
	white					
growth	poor		moderate		good	
leaf cover	poor		moderate		good	
disease	good		moderate		healthy	
resistance						
Fruit shape	round		blocky		elongated	"pear"
						like
General	faint		moderate		good	
color						
solidness	soft		moderate		solid	
General	rejected		average		excellent	
estimation *			quality			

Results

The results are summarized according to the location of the tests and according to the deferent tests performed.

In the field tests- The varieties are ordered according to the general evaluation score.

In Acre, several subsequent harvests of regular and special varieties were performed, for yield comparison in different dates, for early/ late variety, and for field adaptation.

The statistical tests were performed by Yael Phuzin by SAS software, using S.N.K test with significance value of 0.05.